FLIGHT

First Aero Weekly in the World

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE AERO CLUB OF THE UNITED KINGDOM.

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BRITISH MILITARY AERONAUTICS.—New dirigible shed now in course of construction at Farnborough for the new British airship which will before long be ready for its house. In the background of the lower photograph the old airship sheds are seen. See special article, page 38.

A MORAL FROM FRANCE FOR BRITISH UNITY.

Time and time again have we urged upon all those who desire to see this country take its proper place in the aeronautic councils of the world, the necessity of rallying solidly round the Aero Club of the United Kingdom and of lending their immediate aid to make that body as thoroughly representative of the British Isles as it is possible for any national institution of the kind to be. Various reasons have been advanced for this course in these columns during the past twelve months, and it has been our constant endeavour to show why that parent body with its allies—the Aeronautical Society and the Aerial League—deserve and ought to be accorded the whole-hearted support and direct membership of every genuine patriot, let alone of every individual who hopes to take any practical part whatsoever in the gigantic work that lies ahead of this new movement. Possibly it is not too much to say, however, that never before has there been a more telling occasion than during the past few days when the absolute necessity for unity of action as between all those who would foster the British aeronautic industry has been exemplified in a specially striking manner and in a way that affects the whole future prospects of the United Kingdom in relationship to those of other European countries—and of France especially. Events have in fact transpired across the Channel in connection with the arrangement by the International Federation of a calendar of events for 1910 which seem to disclose a disposition on the part of our French friends to underrate the immediate intentions of this country very considerably by regarding the British aviator as non-existent, not only now but for some little time to come, and by looking upon British aeronautic interests as being of but small account compared with those of France.

It must be admitted of course that we have a good deal of leeway to make up over here, and that is one of the principal reasons why enthusiastic energy urgently needs to be aroused at home; but apparently it is quite overlooked, or may perhaps be unknown to the foreigner, that inventors here have been doing a vast amount of work of late in this country, even though they may not have been talking overmuch about it. And thus it is possibly hardly to be wondered at that the Frenchman has been inclined to complete his plans for the new year in advance, omitting to make proper allowance for activities in other countries. As we have already suggested above, however, it is an admirable thing for this country that it has had a strong representative body composed of men of experience in such matters, and not merely of fresh comers into the field with little more than enthusiasm to carry them through, and that the Aero Club of the United Kingdom has at this comparatively early stage in International aeronautical politics been able to take a firm stand. At the Conference of the past week in Paris the overwhelming importance of France appears almost to have been sufficiently dazzling in the eyes of the Frenchman to have blinded him to the reasonable requirements of the other nations that take the lead in the civilised world. All the choicest dates throughout the coming season would apparently have been allotted cheerfully to those various towns in France that were keenly anticipating the promotion of big International meetings during the year. England, joined by Germany in particular, and backed up also by Denmark, was compelled to take a very firm stand indeed in order to prevent being outvoted at the Conference. As events turned out, the British Club was ultimately successful in upholding the rights of this country even though it involved a considerable amount of diplomacy and the adoption of an extremely firm attitude to bring the result about. But although it is satisfactory to be able to record that suitable dates were ultimately allotted to the United Kingdom for a meeting in July as well as for another in August, yet the main point that really concerns us here is one of principle and of policy alone. Here, in fact, we have a case in which any sign of weakness or of internal dissension on the part of this country might have done incalculable harm, not only to our prestige in the eyes of other nations, but actually to the business prospects of the aeronautic industry for very many years to come. The risk, it will be observed, is that of permitting France during these earliest days when she has already acquired a useful start, to profit by that lead to the extent of using it for the purpose of maintaining it indefinitely. It is, in fact, quite bad enough that just at the present time anyone who needs a ready made power-driven aeroplane has a bigger selection from France than over here, and one of the principal reasons why institutions like the Aero Club are founded is in order to enable experimenters and builders at home to take their proper place immediately the progress made by them is sufficient to justify it.

Just in the same way that this question for the forthcoming season has brought the A.C.U.K. very much to the fore and has emphasised the necessity that there is for backing it with the fullest possible authority to speak in the councils of the world, and to exercise real power, so other events of the same kind may occur at any moment from now onwards, and a vast amount of harm be done if any display of weakness were at any time rendered unavoidable owing to national dissensions between one representative institution and another. The present, therefore, seems to be a particularly appropriate time to urge upon our readers the desirability for efforts to be put forth by them for increasing the power wielded by the Aero Club of the United Kingdom and its allies. Hence we suggest that those who have not already joined the membership of one or other of those sporting, scientific, and patriotic institutions, respectively, if not more than one of them, should send in their application forms at once, and should use their best endeavours to induce as many friends as possible to follow suit. Therein, for the immediate future at any rate, lies the road to progress for the aeronautic movement in Great Britain.

It is not, in fact, everyone who can at the moment lend a helping hand by carrying out experiments, by building machines or by popularising the science of flight. But there are plenty of all-British flyers, both on and off the stocks, of which a very great deal indeed will be heard between now and the time of the British July meeting, and we do not hesitate to say that the degree of satisfaction with which we and others who are interested in British aeronautics will be able to look back upon the present year at its close will depend hugely upon the extent to which the membership of these three representative bodies increases in the immediate future.

FLIGHT PIONEERS.

MR. MORTIMER SINGER.

AERIAL PROPELLERS.

AND SOME POINTS WHICH MAKE THEM INTERESTING

(Continued from page 3[illegible].)

Thrust and Slip.

THE primary condition which it must obviously fulfil is that of creating a thrust (P) sufficient to overcome the resistance of the aeroplane in its line of flight. This thrust [illegible] it has [illegible] been shown, can only be maintained by imparting a rearward velocity or slip (v) [illegible] [illegible] mass per second [illegible] of air [illegible] the value of the thrust [illegible] [illegible] being given by [illegible] very [illegible] equation $P = mv$. Expressed in words, this [illegible] statement shows that the pressure or thrust of the propeller depends on the mass of air which it acts on in one second and on the real slip which it imparts to that mass. It will be observed, however, that increasing the speed (v) [illegible] [illegible] [illegible] increase [illegible] [illegible] per second (m) in the same proportion [illegible] the m[illegible] [illegible] [illegible] expression of ρAv where ρ [illegible] the density and A the area of the column in motion, v velocity. It [illegible] [illegible] the [illegible] expression $P = mv$ may be written $P = \rho Av^2$, from which the important deduction is made that whereas the thrust is only directly proportional to the amount of air [illegible], it increases as the square of the speed of the slip.

"Disc Area."

For the above, the area may be assumed as equal to that of an imaginary disc attached to the boss of the propeller and having a diameter extending to the tips of the blades. As such a disc would have an area equal to $\pi D^2/4$, it therefore follows that the propeller thrust is proportional to the square of its diameter.

In order to increase the thrust which [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] necessary to increase the [illegible] of the [illegible] [illegible] [illegible] [illegible] of [illegible] [illegible] [illegible] increasing the [illegible] propeller [illegible] by increasing the [illegible] [illegible] [illegible].

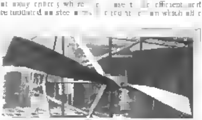
Pitch of a Propeller.

The pitch of a propeller is the distance [illegible] [illegible] it would advance [illegible] [illegible] the angle of the blades [illegible] [illegible] [illegible] in one revolution, and for any given diameter it [illegible] therefore an indirect measure of the angle which the tips of the blades would make to the plane of a disc fastened to the propeller boss. Such being the case, it does not require a very technical mind to come to the conclusion that the ratio between the pitch and the diameter can [illegible] [illegible] practical utility because of the churning action which would be set up by the blades if they were given too great an angle. If, for instance, they were set wholly at right angles to the imaginary disc, they would not be a propeller at all, but a churn pure and simple. At the other extreme, if the blades had no angle at all, they would merely be equivalent to a disc revolving in a plane at right angles to the [illegible]. It can be [illegible] [illegible] the intermediate value of 45° is the theoretical angle at which a blade should be set for working in free air [illegible], but the values adopted in practice are commonly far below this, and the exact value is a factor which depends upon the skill and experience of the designer.

There is another point to be borne in mind too, and that is that the angle of the blade is neither constant from root to tip nor [illegible] [illegible] from leading edge to trailing edge. A constant blade angle from root to tip would result in a variable pitch, and a constant blade angle from leading edge to trailing edge would produce a flat blade, which, on the analogy of the aeroplane, might well be expected to be less efficient than one suitably cambered. For approximate reckoning it is sufficiently near the mark to regard a propeller as being a portion of a helix having such variations in blade angle as will produce a constant pitch at all diameters from the boss to the periphery. As a matter of fact there are practical considerations which cause a departure from this principle, especially in propellers like those made entirely of wood, where the blade itself actually does spring, and [illegible] [illegible] not mounted on a separate arm.

Wood v. Metal.

In any propeller based on the helix principle, the blade angle essentially increases from tip to root, and there comes a point where the blade [illegible] [illegible] [illegible] any longer of [illegible] value, owing to its negative efficiency. From this point to the boss it is the designer's chief object to reduce loss rather than to gain thrust, and thus it is that in metal propellers the blades are commonly cut away entirely where they cease to be efficient, and are mounted on steel arms [illegible] [illegible] [illegible] which offer relatively small resistance to their passage through the air. In wooden propellers, where the blade is an integral part of the whole construction, considerations of [illegible] prevent any such cutting away as this, and consequently it is usual in well designed propellers to find the blade gradually merging into a [illegible] [illegible] [illegible] form, as it approaches the boss.



[illegible]

The Short propeller is constructed entirely of wood and consists of six separate layers which are joined together to form a solid piece.

Weight and Strength.

When considering a propeller it is not alone sufficient to have regard to its theoretical qualities, for like all other practical mechanism considerations of weight and strength [illegible] [illegible] [illegible] the [illegible] [illegible] [illegible] clear. Excessive weight, for instance, is the principal factor which [illegible] the use of propellers of very large diameter, and always where there is a question of weight concerned with a moving part, the question of strength has enhanced importance. On the whole, of course, the designer's object is to use as large a propeller as possible without running up against any of the difficulties which beset his path.

"Cavitation."

There is one other consideration which is involved in an analysis of the equation ($P = mv$) for the thrust of a propeller and that is the effect of the revolution [illegible] minute. [illegible] given pitch, increasing the [illegible] increase the speed of [illegible] forward [illegible] and will [illegible] effect upon [illegible] resultant th[illegible]

In the Beedle propeller [illegible] blades [illegible] made [illegible] supporting by [illegible]

[illegible] however, that this [illegible] [illegible] consideration in the design of the propeller [illegible]

High and Low Speed.

Besides the question of strength, high speed [illegible] other difficulties which are well known to [illegible] with mechanical apparatus. [illegible] be particularly well balanced, and on an aeroplane the gyroscopic force has also to be taken into account, lest it interfere with the control or possibly [illegible] the propeller shaft due to a sudden swerving of the [illegible]. Practical experience [illegible] present day, however, seems to indicate that propellers can be satisfactorily operated at the same speed as the [illegible] and for the time being [illegible] as fast as anyone is likely to wish to use them.

Efficiency.

So far we have considered only one aspect of propulsion, that of obtaining the greatest possible thrust from the screw. It has been convenient to take this side of the question by itself, because by fixing the idea on one point [illegible] shows [illegible] relation [illegible] between what may be termed [illegible] principles of [illegible] propeller design. [illegible] shown [illegible]

It has been [illegible] propeller [illegible] [illegible] velocity [illegible] minimum.

[illegible]

The Best Propeller.

[illegible] That propeller [illegible]

The [illegible] wooden [illegible]

The [illegible] propeller.

Some of the considerations which [illegible] the diameter of the propeller have already been [illegible] some of those which affect the [illegible] revolution, speed, and pitch. This latter factor, however, has [illegible] be considered on its own [illegible] here, and [illegible] a limitation of the blade angle [illegible] out [illegible] [illegible] to adopt an efficient [illegible] in any [illegible] which [illegible] that if the diameter is also made as large as possible, the revolution speed will be the sole remaining factor by means of which the other [illegible] can be adjusted [illegible] the thrust required.

(*To be continued.*)

* * *

Ae.C.F. Doings.

THE Aero Club of France have decided to send three challenges to the Aero Club of America for the Gordon-Bennett Flight Cup and [illegible] have also entered a full team for the Gordon Bennett Balloon Cup Race which will also be held in America this year.

It has been decided to present gold medals to Mr. Henry Farman for his duration and distance records and to Mr. Hubert Latham for the very sporting flights he has carried out on his monoplane, while silver [illegible] medals are to be given to M. Maurice Farman and M. [illegible] for their performances [illegible] country.

Pilot-aviators' certificates have recently been granted to the Hon. C. S. Rolls, M. Mortimer Singer, MM. Jacques de Lesseps, Molon, Bregi, [illegible], [illegible], Aubrun, [illegible] and [illegible], pilote-aéronautes' certificates being given to MM. Pierre [illegible] and Louis Godard. [illegible] also has qualified for a balloonist's certificate.

BRITISH MILITARY AERONAUTICS.

ACTIVITY AT THE BALLOON FACTORY.

From Our Special Correspondent.

[illegible] which the [illegible]

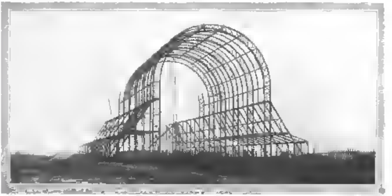
Only [illegible] recently [illegible] has been [illegible] subject of [illegible] military [illegible] before [illegible] many [illegible] spent [illegible] make much [illegible] now [illegible] were taken at South Farnborough [illegible] must be fairly obvious [illegible] that the authorities are not asleep.

Important changes have, as our readers are aware, taken place in connection with the control of the various departments associated with military aeronautics, the most striking departure having been the appointment of a civilian, Mr. Mervyn O'Gorman—a well-known consulting engineer and automobile expert—to the post of Superintendent of the Military Balloon Factory. [illegible] Colonel Capper succeeded, out of his [illegible] charge in looking after this huge and important work, in addition to his proper duties as Commandant of the Military Balloon School, which in war time provides the balloon companies that are attached to the fighting forces. How one man could ever be expected to run a factory, design dirigibles, aeroplanes, and other such [illegible] in addition to [illegible] warfare is somewhat of a mystery [illegible] Colonel Capper made an attempt [illegible] towards laying the foundation [illegible] equipment [illegible] world.

Now that the two departments have been separated each should progress apace [illegible] we have mentioned only recently [illegible] developments have already taken place [illegible] Mr. Mervyn O'Gorman [illegible] the works [illegible] photographs [illegible] a new shed for a dirigible.

[illegible] principal members [illegible] and when it is finished the shed will measure [illegible] 60 ft. and [illegible] height [illegible] the height to the springing of the arches being [illegible] The base width of the [illegible] on the ground measures [illegible] 5 ft. wide [illegible] concrete [illegible] reinforced by [illegible] The construction work is being carried out by the Cleveland Bridge and Engineering Co., of Darlington, and [illegible] within two months.

[illegible] still [illegible] of any [illegible] accommodation [illegible] present [illegible] As [illegible] are expected [illegible] to stay [illegible] comprehension [illegible]



[illegible] Copyright.

BRITISH MILITARY AERONAUTICS.—Half side view of the new dirigible shed being constructed at Farnborough.

afford [illegible] yet [illegible] Italy to [illegible] I learn [illegible] the [illegible] that [illegible] the [illegible] Bahy [illegible] own part [illegible] been more material [illegible] Bahy [illegible] would find [illegible]

[illegible] in the near future.

* * *

MONOPLANE *v.* MULTIPLANES.

By A. V. ROE.

At the recent Aero Show Dinner the Hon. C. S. Rolls said "It seems fairly certain that the monoplanes or multiplanes will not be successful." When Mr. Rolls made these words he would then have overlooked that an English triplane made a number of flights in July and August with only a [illegible] h.p. J.A.P. engine, having two air-cooled cylinders of only 3[illegible] in. bore and [illegible] stroke.

As far as the writer's knowledge goes, no monoplane of such low power has ever approached this result, and this speaks very highly of the future possibilities of the triplane. At present the monoplane is undoubtedly the most graceful of flyers, but other things besides appearances must be taken into consideration. In my own efforts time and energy are being devoted to producing a light handy machine, for obviously the smaller and lighter the aeroplane, the less likely is the aviator to find himself in trouble when taking cross-country trips.

Naturally one would ask, "What are the advantages of the triplane?" Firstly, the triplane is only one-third the size of a monoplane, roughly speaking, of the same area, and consequently the triplane portion is reduced to *one-sixth* of the weight. As there is such a reduction in size the strains are reduced considerably and the angle of the wing is not so acute as in the monoplane; one can more easily get a higher aspect ratio with greater cutting edge, and this gives greater lifting power per square foot of surface.

Monoplane enthusiasts say there is a loss of efficiency through superimposing the planes, but it has been proved that for angles of less than 5° the interference is practically nil, when planes are at their own depth apart. The main planes being narrow, [illegible] can [illegible] be kept several depths apart from them, and consequently they can carry the same weight per sq. ft. as main planes. The writer found his 9-h.p. aeroplane would not fly unless it carried the same weight per sq. ft. on all the planes, that is to say, [illegible] was required in [illegible] to the triplane [illegible] than a biplane of equal [illegible].

Stability is perhaps the most important [illegible] in an aeroplane, and in this triplane I [illegible] mentioned about which proved to be very troublesome when [illegible]. At present the Avro [illegible] holds the [illegible] for manoeuvring in rough weather, and this I consider is greatly due to the dihedral angle of wings.

Perhaps some readers of the triplane may consider the triplane unstable owing to my accident last December 24th. This was due to making a sudden turn, the inside quickly losing in the relative speed on that side. I relied [illegible] on the warping [illegible] back again (which by the way had been recently reduced, as I deemed unnecessary to have [illegible] actually used), but this was not enough, and before I [illegible] using the vertical rudder to [illegible] the machine round and so increase speed on the falling side the machine struck the ground heavily. Had the machine been a monoplane of same area and consequently greater span, and had such a sharp turn been made, the result would have been still more pronounced, as the tips of the monoplane would have been travelling relatively slower [illegible] than those of the smaller span triplane.

Some people may think they have perfect control of an aeroplane after their third flight, but [illegible] hundred flights are not sufficient to prevent the gaining of some little knowledge each time.

As regards monoplanes and multiplanes, I have not the least doubt these two will come along in the near future, but each type necessitates a considerable amount of experimental work.

* * *

12½ Miles Up in the Air

Mr. W. H. Dines, who is conducting some experiments in connection with the temperature of the upper atmosphere, was able to give recently the result obtained with some small balloons equipped with registering apparatus. Eight such balloons were sent up from Crinan, Argyllshire, and three have been recovered, one near Oban, another at [illegible] and a third at Biggar. Two of them reached an altitude of 12½ miles, and while the temperature at seven miles high at one reading of the instruments was 60 degrees F., at another it showed 90 degrees F.

Flying Over Lake Geneva

The organisation of flying races across Lake Geneva, to which we referred recently, is now taking definite shape, and an event is being arranged to take place from [illegible], just by Lausanne, to Evian-les-Bains, the date suggested being between June [illegible]th and [illegible]th. The distance between the two landing places would be 14 kilometres, and in view of the fact that one is on Swiss territory and the other in France, the meeting would naturally assume an International character, the Aero Clubs of Switzerland and France sharing the responsibility of organisation.

The Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting

A meeting of the Committee was held on Tuesday [illegible] [illegible] present [illegible] in the chair [illegible] [illegible] A. [illegible] Hunt [illegible] Mr. [illegible] Mo[illegible] [illegible] [illegible] Pr[illegible] [illegible] [illegible] Lyees [illegible] Mr. [illegible] Spri[illegible] [illegible] Cap[illegible] [illegible] [illegible] [illegible]

New Members.—The [illegible] were elected:—

[illegible]

Edward [illegible] Edward

Col. J. [illegible] F. [illegible] F.

[illegible]

Richard [illegible]

[illegible] Kemp

[illegible] Lumsey

H. [illegible] John [illegible]

Stephen [illegible]

J. H. Yates

Dr. [illegible]

[illegible] War

J. E. [illegible]

Membership

The 1,000 Founder Members [illegible] [illegible] [illegible] will therefore be charged an entrance fee [illegible] [illegible] annual subscription of [illegible]

Aero Exhibition at Olympia.

The [illegible] regarding the [illegible] [illegible] [illegible] for distribution amongst [illegible] members. Space [illegible] and the Aero Club [illegible] erect suitable stands [illegible] In order to partly cover [illegible] [illegible] will be made to each exhibitor [illegible] [illegible] during the whole exhibition.

Medals will be awarded by the Aero Club and the Aerial League of the British Empire.

Entries and all inquiries must be [illegible] Piccadilly, London, W.

Members wishing to exhibit [illegible] machines are requested to [illegible] with the Aero Club.

New Premises.

The club premises are now open, and the many members who have been [illegible] the Club since its opening have [illegible] expressed their satisfaction [illegible] the arrangements which have been made for their comfort.

International Aeronautical Federation.

The Chairman, Mr. Roger Wallace, and Captain E. Claremont, [illegible] attended the meeting [illegible] of the Bureau of the International Aeronautical Federation on Monday, the [illegible]th inst., and [illegible] International Meetings were allocated to England [illegible] [illegible] [illegible] The Committee will shortly consider applications [illegible]

Heliopolis (Cairo) Aviation Meeting

The [illegible] Feb[illegible] [illegible] [illegible] Mr. A. Mortimer Singer will represent the Aero Club and after his recent performances at Cannes, it is hoped that he will be successful [illegible] [illegible] of the [illegible] [illegible] [illegible] also [illegible] [illegible] [illegible] take part [illegible] competence.

Associated [illegible] Aero Club

[illegible] England.

Aero Club Prize

[illegible] from [illegible] has been [illegible]

Alexander £1,000 Prize Competition

[illegible] the [illegible] Secretary.

The British Empire Michelin Cup.

[illegible] £500.

[illegible]

Conditions.—The [illegible] be [illegible] March [illegible] [illegible]

2. [illegible] shall be [illegible] [illegible] [illegible]

3. [illegible] [illegible] [illegible]

4. [illegible] [illegible] every [illegible] engaged [illegible] [illegible] body dealing with [illegible] matters [illegible] [illegible] 500 yards, before making any attempt [illegible]

5. All attempts must be made between the hours of [illegible] in the presence of the official or officials appointed by the [illegible] of the Aero Club.

6. The recognised flying ground [illegible] Shellbeach, Island of Sheppey, but the Committee of the Aero Club will be willing to [illegible] any other ground subject to the competitor paying the necessary expenses incurred.

7. The [illegible] the records will be [illegible] from [illegible] the [illegible] time to [illegible] flight.

8. Competitors must be British subjects from any part of the Empire [illegible] British made machines. All the principal parts of [illegible] must be British made. All decisions applying to this rule shall be given by the Chairman of the Aero Club, Mr. Roger W. Wallace, K.C., and failing him by an [illegible] [illegible] by [illegible] President of the Institution of Civil Engineers. [illegible] finished or manufactured parts of each machine must comply with the above conditions.

9. The decision of the officials of the Aero Club on all matters connected with this competition [illegible] be final and without appeal.

E. CLAREMONT, CAPT. R.N.
[illegible] E. PERRIN

[illegible] Joint Secretaries.

◆ ◆ ◆ ◆

Who Have Flown over an Hour.

NINETEEN flyers at present can claim to have flown continuously for more than an hour. They are as follows, the names being set out in alphabetical order:—

Jacques Balsan, Louis Bleriot, de Caters, Edouard Chateau, S. F. Cody, Engelhardt, Henry Farman, Grade, de Lambert, Hubert Latham, Jacques de Lesseps, Paulhan, Rougier, Mortimer Singer, Sommer, Tissandier, Van den Born, Orville Wright, Wilbur Wright.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

[illegible] to the Secretary. [illegible]

Aviation Association of Ireland [illegible]

There was considerable [illegible] [illegible] was held [illegible] that there was [illegible]

[illegible] people [illegible] The [illegible] French were [illegible]

Oldham Aero Club [illegible]

[illegible]

S.W. Eng and Aeronautical Soc. [illegible]

[illegible]

Yorkshire Aero Club [illegible]

[illegible]

OFFICIAL FRENCH RECORDS TO DECEMBER 31st

[illegible] of [illegible] mechanical [illegible] of the [illegible] figures [illegible] Although [illegible] and Henry Farman were [illegible] distance [illegible] kilometre their speeds were officially passed as [illegible] and [illegible] per hour [illegible]

DURATION AND DISTANCE RECORDS.

Pilot.	Date.	Place.	Duration. h. m. s.	Distance.
Santos Dumont	Nov. 12, '06	Bagatelle	0 [illegible] 21	220 metres
Henry Farman	Oct. 26, '07	Issy	[illegible]	771 m.
	Jan. 13, '08		[illegible]	1 kilom.
	Mar. [illegible] '08		[illegible] 3 39	[illegible]
Leon Delagrange	Apr. [illegible] '08		0 15 26	[illegible]
"	May [illegible] '08	Rome	[illegible]	[illegible]
Henry Farman	July [illegible] '08	Issy	[illegible]	—
Leon Delagrange	Sep. [illegible] '08		[illegible]	[illegible]
Wilbur Wright	Sep. [illegible] '08	Auvours	1 31 [illegible]	[illegible]
"	Dec. 18 '08		[illegible]	[illegible]
	Dec. 31 '08		[illegible]	[illegible]
L. Paulhan	Aug. [illegible] '09	Rheims	[illegible]	134
Hubert Latham	Aug. 26 '09			[illegible]
Henry Farman	Aug. 27 '09		3 4 [illegible]	180
"	Nov. 3 '09	Chalons	4 17 [illegible]	[illegible]

SPEED RECORDS

Kilomts.	Pilot.	Date.	Place.	h. m. s.
	Delagrange	May [illegible] '09	[illegible]	0 1 [illegible]
	Capt. Ferber	Sep. [illegible] '09		[illegible]
[illegible]	W. Wright	Sep. [illegible] '08	Auvours	[illegible]
[illegible]	Tissandier	May [illegible] '09	Pont Long	[illegible]
[illegible]	W. Wright	Sep. [illegible] '08	Auvours	[illegible]
	Tissandier	May [illegible] '09	Pont Long	[illegible]
	Blériot	Aug. [illegible] '09	[illegible]	[illegible]
[illegible]	W. Wright	Sep. [illegible] '08	Auvours	[illegible]
	Tissandier	May [illegible] '09	Pont Long	[illegible]
	Curtiss	Aug. '09	Rheims	[illegible]
[illegible]	W. Wright	Sep. [illegible] '08	Auvours	[illegible]
	Tissandier	May [illegible] '09	Pont Long	[illegible]
	Curtiss	Aug. '09	Rheims	[illegible]
[illegible]	W. Wright	Sep. [illegible] '08	Auvours	[illegible]
	Tissandier	May [illegible] '09	Pont Long	[illegible]
	Latham	Aug. '09	Rheims	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Latham	[illegible]		[illegible]
	W. Wright	[illegible]	[illegible]	[illegible]
	Latham	[illegible]		[illegible]
[illegible]	H. Farman	Nov. 3, '09	[illegible]	[illegible]

TIME RECORDS.

				Duration
[illegible]	Tissandier	May 20, '09	Pont Long	[illegible]
[illegible]	W. Wright	Sep. [illegible] '08	Auvours	[illegible]
	Tissandier	May 20, '09	Pont Long	[illegible]
	H. Farman	Nov. 3, '09	Chalons	[illegible]

PASSENGER RECORDS (one passenger besides pilot)

Duration

			h. m. s.
W. Wright with M. P. Painlevé	Oct. [illegible] '08	Auvours	[illegible]
with M. Painlevé	Oct. [illegible] '08		[illegible]

Distance

W. Wright with M. Painlevé	Oct. [illegible] '08	[illegible]

Speed

[illegible]	H. Farman	Aug. '09	Rheims	[illegible]

With two Passengers.

[illegible]	H. Farman	Aug. '09	Rheims	[illegible]

HEIGHT RECORDS.

Latham	Aug. '09	Rheims	155
Comte de Lambert	Oct. [illegible] '09	Paris	300
Latham	[illegible] '09	Chalons	453

AIRSHIP SPEED RECORDS.

				h. m. s.
10 kilomts.	Comte Renard	Aug. '09		[illegible]
20				[illegible]
30				[illegible]
40	"	"		[illegible]
50				[illegible]

AVIATION NEWS OF THE WEEK.

Cross Country Flying at Shellbeach.

[illegible] Friday [illegible] week [illegible] uplane [illegible] [illegible] the Aero [illegible]

Henri [illegible] Flies in France.

[illegible] Henri Farman [illegible] machines, [illegible] ment of h[illegible]

Flying a Kilometre High.

[illegible]

[illegible] FRANKFURT FLIGHT EXHIBITION. [illegible]
Some envelopes which were despatched by balloon post from Frankfurt [illegible] to Germany [illegible].

Chalons [illegible] Antoinette [illegible] [illegible] Then he [illegible] [illegible] conditions were favourable. [illegible] [illegible] metres.

Another [illegible] Flight [illegible]

[illegible] [illegible] was [illegible] covered.

[illegible] Prize [illegible]

[illegible]

Flying a [illegible]

[illegible] necessary [illegible]

[illegible]

[illegible] Flying [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] Flying [illegible]

[illegible]

The [illegible] Aerodrome

[illegible]

HAMPTON COURT PALACE.—Bird's-eye view [illegible] at an altitude of [illegible] ft. [illegible]

Parliamentary Candidates and Flight

THE Secretary of the Aerial League [illegible] Parliamentary candidates who have not yet replied [illegible] regarding [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] being to our [illegible] are [illegible], while [illegible] [illegible].

A San Remo Prize.

[illegible] has been offered by [illegible] [illegible] [illegible] San Remo [illegible] [illegible] [illegible] [illegible] the [illegible].

A New German Aerodrome Co.

[illegible] They will be held [illegible] [illegible] [illegible].

First German Aeroplane Pilot.

[illegible] first aeroplane pilot's certificate [illegible] German Aeronautical [illegible] has been granted Herr August Euler of Frankfort who [illegible] conditions of flying [illegible] [illegible] [illegible].

Flying in Liege.

M. Eeste [illegible], who has recently [illegible] at Chalons, has now [illegible] his [illegible] biplane [illegible] [illegible] Liege, [illegible] on Friday [illegible] very good flight [illegible] [illegible] minutes duration respectively.

Baron de Caters at Antwerp.

[illegible] Baron de Caters [illegible] [illegible] [illegible] [illegible] flights [illegible] the [illegible] [illegible] [illegible] [illegible] damage [illegible] [illegible] Baron de Caters, therefore, [illegible] place at once.

Discontented Spectators at Algiers.

[illegible] Oelsleger's was announced [illegible] [illegible] Algiers [illegible] the spectators were dissatisfied [illegible] [illegible] and showed their displeasure [illegible] [illegible] Lebufar [illegible] [illegible] [illegible] [illegible] [illegible] over the [illegible].

Los Angeles Flying Meeting.

[illegible] Wright Brothers [illegible] [illegible] [illegible].

Paulhan Flies [illegible] Flight.

[illegible]

Count Zeppelin Better.

On the 6th [illegible] Count Zeppelin [illegible] [illegible] [illegible] [illegible] have been [illegible] [illegible] [illegible] recovered [illegible].

GERMAN MILITARY AERO[illegible]—The [illegible] Schwarz [illegible] [illegible] [illegible] Kiaulhan near [illegible].

CORRESPONDENCE.

The name and address of the writer [illegible] *all cases accompany* [illegible]

Correspondents asking questions [illegible] FLIGHT [illegible] reference by [illegible] page [illegible]

NOTE.—Owing to the [illegible] correspondence which [illegible] responsible, [illegible]

SAIL ACTS

[illegible]

[illegible]

LARGE ELASTIC MOTORS

[illegible]

DETAILS OF CONSTRUCTION

[illegible]

Fig. 1

[illegible]

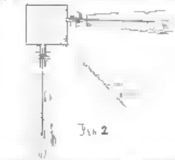


Fig. 2

[illegible]

Fig. 3

[illegible]

FLAT GROUND WANTED

[illegible]

you as to the best way to go about it. I should esteem it a favour if you or some of your readers could inform me of a good district not too far from London where suitable private workshops or garages, convenient to ground for experimental flights, could be obtained, and also which of the clubs would be most likely to be of service to a beginner.

[illegible], W.C. "Enquirer."

BLERIOT MONOPLANE.

[illegible] As it has been stated in the Press that the sole agency for Australia for the above has been given to a certain individual we should be much obliged if you would find room in your paper to contradict this statement. The exclusive agency for any Colony has not and will not be given to anybody.

We are shipping and have shipped a good many of these machines to Australia, and other British Colonies, and all applications should be sent direct to us. We may say that our whole output has been sold up to June, but it is possible to secure one or two machines for delivery in April at a premium.

The [illegible] ground [illegible] and arrangements can be made through us for free tuition, either here or at Pau, to purchasers of Blériot machines.

[illegible], Long Acre, W.C. [illegible] Ltd.

TIMBER.

[illegible] In [illegible] Mr. L. [illegible] in your issue of [illegible] December [illegible]. Their [illegible] for [illegible] wood [illegible] building, we would draw the attention of your readers to our advertisement of *special American Hardwood* which [illegible].

This [illegible] specially [illegible] by [illegible] works. It is supplied in lengths from [illegible] average in [illegible] lengths [illegible] We [illegible] readers of FLIGHT [illegible] we should be very pleased to supply [illegible].

Varnish.

[illegible] Mr. [illegible] of Chelsea, [illegible] will [illegible] the best quality paper varnish, [illegible].

It can be obtained at any good varnish dealers, [illegible] and if applied [illegible] warm room [illegible] will be dry in twenty-four hours.

Wood Cutting.

We should like to offer our thanks to Mr. [illegible] for the very valuable advice on wood-cutting [illegible] the letter headed "Ash [illegible] Spruce" in the same issue. We think many amateurs who are engaged in cutting wood for aeroplane building will be guided [illegible] in time [illegible] useful [illegible].

[illegible] [illegible] & Co.

LOADING OF GLIDERS.

[illegible] As a constant reader of [illegible] I should be [illegible] if FLIGHT would be good as to answer the following questions:—

[illegible] In [illegible] should [illegible] glider for [illegible] With a span of [illegible] and [illegible] the lifting surface would be greater than [illegible] Blériot machine and the weight [illegible] might easily be [illegible] would be [illegible] wings [illegible] construction [illegible] biplane. [illegible] monoplane [illegible] have a reasonable chance of success.

[illegible] FLIGHT.

I have heard that [illegible] and weighing [illegible] would seem to be [illegible]. Could you [illegible] W. W. [illegible]

[illegible] would have [illegible] glider [illegible] While [illegible] flying machine [illegible] a higher velocity of gliding flight than would [illegible] In the present [illegible] Unfortunately [illegible] figures [illegible] FLIGHT, [illegible] There is [illegible] aspect ratio of 5, which is the

[illegible] velocity of [illegible] calculated [illegible] the plane [illegible] whatever [illegible] The [illegible] would [illegible] glider.

In gliding it is necessary to acquire the greatest part of the velocity by virtue of a head wind [illegible] the limiting velocity is therefore determined by the maximum velocity of the head wind in which it [illegible]. On page [illegible] of FLIGHT, Vol. I, [illegible] velocity [illegible] per hour [illegible] should be [illegible] preliminary experiments [illegible] loading [illegible] per sq. ft. [illegible] higher [illegible].

2. The minimum [illegible] FLIGHT, Vol. I. [illegible] it is desirable that a [illegible] average [illegible] speed [illegible] light [illegible] power [illegible].

KITE CURVES.

[illegible] Replying to an inquiry from M. J. [illegible], page [illegible] Therefore [illegible] regarding [illegible] for large [illegible] believe [illegible] in the following manner:

I [illegible] will be made to any [illegible] at any given building scale.

We [illegible] the production of [illegible] of this [illegible] our address we shall be pleased [illegible] interested [illegible] benefit of the experience [illegible] gained.

Nottingham. [illegible] Machine Works, Limited.

[This [illegible] It is [illegible] in either direction [illegible] —Ed.]

C.P. AND C.G.

[illegible] As [illegible] pages [illegible] should be glad if you would, through the medium of your [illegible], enlighten me.

I have [illegible] Would [illegible] know where centre [illegible] should be [illegible] of [illegible] plane [illegible] edge.

[illegible] F.

[Assuming [illegible] of pressure [illegible] from the leading edge [illegible] balance [illegible] —Ed.]

CHEAP GLIDERS.—WORKING DRAWINGS OF GLIDERS.

[illegible] Do you know if anyone who could supply me with detail drawings of a glider which is entirely practical, and not an expensive [illegible] already [illegible] but [illegible] working [illegible] design would be [illegible] appreciated. Wishing you [illegible] interesting paper every success, and thanking you in anticipation.

Charles T. [illegible]

[illegible] F[illegible]

[If a gliding machine [illegible] the operator [illegible] always be prepared to [illegible] himself [illegible] and in the [illegible]

[illegible] the first young [illegible] [illegible] of gliding, was killed [illegible] [illegible]

[illegible]

PROPELLERS.

[2[illegible]] In answer to Mr. [illegible] [illegible] Natural Flight," the following [illegible] [illegible]

[illegible]

This [illegible] [illegible] per sec.

The greatest thrust possible [illegible]

[illegible]

The machine was very [illegible]

[illegible]

WRIGHT GLIDER LAUNCHING APPARATUS.

[illegible] launching [illegible] our Wright glider [illegible]

[illegible]

The glider was [illegible]

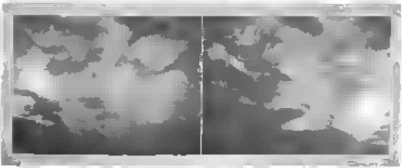
[illegible]

HOLLOW SPARS.

[illegible]

[illegible] FLIGHT PHOTOGRAPHS.

[illegible]



Two [illegible] planes of Paulhan flying [illegible]

[illegible] NOT PER CENT.

[illegible]

ACCIDENTS AND THEIR LESSONS.

[illegible]

[illegible] IN IRELAND.

[illegible]

OLYMPIA EXHIBITION.

[illegible]

DIARY OF FORTHCOMING EVENTS.

British Events.

[illegible]

Foreign Events.

[illegible]

Aeronautical Patents Published.

[illegible]

BACK NUMBERS OF "FLIGHT."

[illegible]

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.

Telegraphic address: Truditur, London. Telephone: [illegible] Gerrard.

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[illegible] will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM. ABROAD.

[illegible]

Cheques and Post Office Orders should be made payable to the Proprietors of FLIGHT, 44, St. Martin's Lane, W.C., and crossed London and County Bank; otherwise no responsibility will be accepted.